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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/292,132  | 04/14/1999  | SALMAN AKRAM         | MI22-1171           | 3104             |
| 21567   | 7590        | 03/13/2002           |                     |                  |
| WELLS ST. JOHN P.S.<br>601 W. FIRST<br>SUITE 1300<br>SPOKANE, WA 99201-3828 |             |                      | EXAMINER            | MULPURI, SAVITRI |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2812                |                  |

DATE MAILED: 03/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                    |                                    |                         |   |
|------------------------------|--------------------------------------|------------------------------------|------------------------------------|-------------------------|---|
| <b>Office Action Summary</b> | Application No.<br><b>09/292,132</b> | Applicant(s)<br><b>Akram et al</b> | Examiner<br><b>Savitri Mulpuri</b> | Art Unit<br><b>2812</b> |  |
|                              |                                      |                                    |                                    |                         |   |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)  Responsive to communication(s) filed on Jan 28, 2002

2a)  This action is **FINAL**.      2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

4)  Claim(s) 51-53, 55-59, and 62-81 is/are pending in the application.

4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) 55-59 is/are allowed.

6)  Claim(s) 51, 52, and 62-81 is/are rejected.

7)  Claim(s) 53 is/are objected to.

8)  Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

11)  The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved.

12)  The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

13)  Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) All b) Some\* c) None of:

1.  Certified copies of the priority documents have been received.

2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

14)  Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

15)  Notice of References Cited (PTO-892)

16)  Notice of Draftsperson's Patent Drawing Review (PTO-948)

17)  Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_

18)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_

19)  Notice of Informal Patent Application (PTO-152)

20)  Other: \_\_\_\_\_

Art Unit:

**DETAILED ACTION**

*Continued Prosecution Application*

The request filed on for a request for continued examination (RCE) under 37 C.F.R 1. 114, in paper no. 21 filed on 1/28/02 has been established. Amendment was submitted along with RCE.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 62-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardener et al. Gardener et al disclose a method of making a FET device by the following process steps: Providing a gate oxide layer on as surface of a substrate; forming a gate electrode on gate oxide layer, wherein side walls of the gate oxide and gate electrode are aligned; forming side walls spacers on the aligned side walls of the gate oxide and gate electrode, wherein side walls having fluorine either by doping or ion implantation; heat-treating the substrate with spacer in nitrogen ambient to suppress hot carrier effect (see col. 3-col. 5).

Art Unit:

Gardener et al do not disclose (1) concentration of the fluorine in the range of  $1 \times 10^{19}$  to  $1 \times 10^{21} / \text{cm}^3$  and concentration depth not more than 500 angstroms (2) forming sidewall spacers on directly elevationally over gate oxide as claimed in claim 62, (3) forming gate oxide extending laterally past the lateral edges of the gate.

Gardener et al discloses the process similar to instant process to suppress HCE and would obtain such claimed numerical limitation through routine optimization as fine tuning process depending on the desired degree of suppression of hot carriers and normally, change in temperature, concentration, or both, is not patentable modification; however, such changes may impart patentability to process if ranges claimed produce new and unexpected result which is different in kind and not merely in degree from results of prior art; such ranges are termed "critical" ranges, and applicant has burden of proving such criticality; even though applicant's modification results in great improvement and utility over prior art, it may still not be patentable if modification was within capabilities of one skilled in art; more particularly, where general conditions of claim are disclosed in prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. In re Aller et al, 105 U.S.P.Q. 233 CCPA (1955).

case law ;

Kusunoki et al teaches forming gate extended gate oxide and thinning gate oxide and the forming spacers on the thinned gate oxide and gate electrode. It would have been obvious to one of ordinary skill in the art to implement the method of Kusunoki et al in the invention of Pan '525 because Pan '525 and Kusunoki et al teach to reduce hot carrier effect by introducing fluorine and nitrogen respectively. Stripping spacers as claimed in 23 is known in the art.

Art Unit:

Claims 51-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al.

Suzuki et al discloses a method of making a device by the following process steps. Providing a substrate, forming gate oxide layer and then annealing in any halogen elemental atmosphere and then forming polysilicon gate electrode. Suzuki et al do not disclose concentration of halogen such as fluorine. The choice of choosing fluorine concentration would have been well within the choice of one of ordinary skill in the art because normally, change in temperature, concentration, or both, is not patentable modification; however, such changes may impart patentability to process if ranges claimed produce new and unexpected result which is different in kind and not merely in degree from results of prior art; such ranges are termed "critical" ranges, and applicant has burden of proving such criticality; even though applicant's modification results in great improvement and utility over prior art, it may still not be patentable if modification was within capabilities of one skilled in art; more particularly, where general conditions of claim are disclosed in prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. In re Aller et al, 105 U.S.P.Q. 233 CCPA (1955).

case law ;

Art Unit:

Claim 53 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 55-59 are allowed.

Applicant's arguments with respect to claims 51-53, 55-59, 62-81 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Mulpuri whose telephone number is (703) 305-5184. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

*S. Mulpuri*  
SAVITRI MULPURI  
PRIMARY EXAMINER